

Patent claims

1. Hardtop vehicle roof having three rigid roof parts which can be adjusted between a closed position covering the vehicle interior and a put-away position opening up the vehicle interior, and, in the closed position, are arranged situated one behind another in the longitudinal direction of the vehicle, and are in each case provided with an adjusting kinematics for adjusting the roof position, and are connected to one another, and also are jointly supported against the vehicle body via the adjusting kinematics of a roof part, the roof parts, in the put-away position, being situated one above another and forming a package of roof parts, characterized in that, in the put-away position, in the package of roof parts, the central roof part (3) is put away lowermost and the two further roof parts (2, 4) are situated above the central roof part (3), in that the central roof part (3) is provided as the roof part which jointly supports the roof parts (2 - 4) against the body, and in that the adjusting drive (12) for adjusting the front roof part (2) and the rear roof part (4) in relation to the central roof part (3) is provided on the central roof part (3).
2. Hardtop vehicle roof according to Claim 1 or 2, characterized in that the adjusting drive (12) for the front roof part (1) and the rear roof part (4) has a common driving source (adjusting cylinder 19).
3. Hardtop vehicle roof according to Claim 2, characterized in that the driving source is formed by a

linear drive, in particular an adjusting cylinder (19).

4. Hardtop vehicle roof according to Claim 2 or 3, characterized in that the adjusting drive (12) has an adjusting arm (17) which is coupled to the central roof part (3) and from which adjusting-lever connections to the adjusting kinematics (8 and 10) supporting the front roof part (2) and the rear roof part (4) are provided.

5. Hardtop vehicle roof according to one of the preceding claims, characterized in that the adjusting kinematics (8 to 10) of the roof parts (2 to 4) are designed as four-bar kinematics.

6. Hardtop vehicle roof according to one of the preceding claims, characterized in that, following the adjusting kinematics (8 and 10) of the front roof part (2) and rear roof part (4), the adjusting drive (12) comprises driving countershaft assemblies (15 and 16, respectively).

7. Hardtop vehicle roof according to Claim 6, characterized in that one driving countershaft assembly (16) is designed as a four-bar kinematics.

8. Hardtop vehicle roof according to Claim 7, characterized in that the four-bar kinematics provided as the driving countershaft assembly (16) is formed by a four-bar mechanism, the base of which is fixed in position with respect to the central roof part (3).

9. Hardtop vehicle roof according to Claim 8, characterized in that links (40, 41) which connect the base and connecting rod of the four-bar mechanism forming a driving countershaft assembly (16) cross over each other.

10. Hardtop vehicle roof according to one of Claims 7 to 9, characterized in that one link (37) of the links (37, 40, 41) of the four-bar mechanism forming a driving countershaft assembly (16) is fixed in position with respect to the driving link (14) of the four-bar kinematics (10) supporting a roof part (4).

11. Hardtop vehicle roof according to Claim 6, characterized in that one driving countershaft assembly (15) is designed as a five-bar kinematics.

12. Hardtop vehicle roof according to Claim 11, characterized in that the five-bar kinematics is formed by a five-bar mechanism, the base of which is fixed in position with respect to the central roof part (3).

13. Hardtop vehicle roof according to Claim 11 or 12, characterized in that one link (32) of the links (32, 33, 34, 36) of the five-bar mechanism is fixed in position with respect to the driving link (13) of the four-bar kinematics (8) supporting a roof part (2).

14. Hardtop vehicle roof according to one of Claims 11 to 13, characterized in that one link (33) of the links (32, 33, 34, 36) of the five-bar mechanism is fixed in position with respect to an adjusting lever (22) of the adjusting drive (12) connecting the front roof part (2) and the rear roof part (4).

15. Hardtop vehicle roof according to one of Claims 11 to 14, characterized in that that link (34) of the five-bar mechanism which is fixed in position with respect to the one adjusting lever (22) of the adjusting drive (12) is guided via a link (33) which is coupled to the base of the said mechanism.

16. Hardtop vehicle roof according to one of Claims 11 to 15, characterized in that the driving countershaft

assembly (15) situated in the transition to the front roof part (2) is designed as a five-bar mechanism.

17. Hardtop vehicle roof according to one of Claims 7 to 10, characterized in that the driving countershaft assembly (16) situated in the transition to the rear roof part (4) is designed as a four-bar mechanism.

18. Hardtop vehicle roof according to one of the preceding claims, characterized in that, in the put-away position, in the package of roof parts the central roof part (3) is put away lowermost, the front roof part (2) is put away in the middle and the rear roof part (4) is put away uppermost.

19. Hardtop vehicle roof according to one of Claims 1 to 17, characterized in that, in the put-away position, in the package of roof parts the central roof part (3) is put away lowermost, the front roof part (2) is put away uppermost and the rear roof part (4) is put away in the middle.

20. Hardtop vehicle roof according to one of the preceding claims, characterized in that, in the put-away position, the roof parts (2 to 4) are stacked in the same direction.

21. Hardtop vehicle roof according to Claim 20, characterized in that the outside of all of the roof parts (2 to 4) faces upwards in the put-away position.

22. Hardtop vehicle roof according to one of the preceding claims, characterized in that, during the transfer of the roof parts (2 to 4) between their closed position and put-away position, the front roof part (2) and the rear roof part (4) can be adjusted simultaneously, in particular in a synchronous, isochronous movement.